

PRISM, A Mid-IR Spectrometric Small Explorer
Thomas N. Gautier, Jet Propulsion Laboratory, Pasadena, California
thomas.n.gautier@jpl.nasa.gov

PRISM, The Protoplanetary Research and Infrared Spectroscopy Mission, is a space based, high spectroscopic resolution ($R \sim 2400$), infrared astronomical observatory operating in the 2-20 micron wavelength region which has been proposed to NASA as a Small Explorer mission in response to AO-99-OSS-05. PRISM will study the environments and protoplanetary systems of young stellar objects as well as comets in the Solar System to understand the origin and evolution of circumstellar and interstellar ices, minerals and molecules that contribute to the formation of Earth-like planets and Earth-like life. PRISM will provide significant increases in sensitivity over ISO and in spectral resolution and short wavelength spectral coverage over SIRTf. This will allow PRISM to make significant advances in the study of protoplanetary systems of solar mass stars and provide important complementary capabilities to SIRTf and pathfinding observations for NGST.

The cryogenically cooled PRISM instrument consists of a 33 cm telescope and 3 spectrometers. PRISM will be launched into a 400 km altitude, Sun synchronous orbit with a Pegasus XL rocket. The telescope, spectrometers and cryogenic system will be provided by the Space Dynamics Laboratory of Utah State University. Raytheon will provide the infrared detector arrays. Orbital Sciences Corporation will provide the PRISM spacecraft. Data reduction and mission planning will be done by the Infrared Processing and Analysis Center at Caltech. PRISM uses flight ready technology and software from SIRTf and WIRE, and a production line spacecraft to reduce mission cost and risk.